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Hematology and Serum Biochemistry of the Egyptian Mongoose, *Herpestes ichneumon*

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ABSTRACT: Hematology and serum biochemical data are presented for the Egyptian mongoose, *Herpestes ichneumon*, caught in Doñana National Park, southwestern Spain.

Key words: Egyptian mongoose, *Herpestes ichneumon*, hematology, serum biochemistry.

There has been increasing interest in the hematology and serum biochemistry of mammals, particularly carnivores (Seal et al., 1975; Brannon, 1985a, b; Caro et al., 1987; Beltrán et al., 1991). However, there are few studies of free-ranging carnivores. We present the first hematologic and serum biochemical data from free-ranging Egyptian mongooses (*Herpestes ichneumon*), a species living in southwestern Europe (Delibes, 1982).

The study was carried out at Doñana National Park, southwestern Spain (37°9′N, 6°26′W), a flat region on the west bank of the Guadalquivir River mouth, encompassing three major biotopes: marsh, dunes and matorral (Rogers and Myers, 1980).

Blood samples were collected and analyzed in December 1985 (n = 1), March to May 1989 (n = 5), and in July 1989 (n = 2). Six mongooses (four adult females, one adult male, and one <1-yr-old female were captured with baited box-traps, which were checked daily. Another adult male was captured by excavating an underground den, just after it fought with an Iberian lynx, *Felis pardina*. Age on all animals was determined from body weight and dentition wear (Palomares and Delibes, 1992). After capture, each mongoose was transported to the laboratory and immobilized with a combination of 4.2 mg/kg of body weight of ketamine hydrochloride (Ketolar, Parke-Davis, Barcelona, Spain) and 6.5 mg/kg of xylazine hydrochloride (Rompum, Bayer, Barcelona, Spain). Mean induction time was 7 min (SD = 3.7). One to 3 ml of blood were taken from the radial or femoral vein 20 to 35 min after induction. In two cases, the blood volume was insufficient for both hematological and serum biochemical analyses in an animal; thus, only six animals were considered for each analysis. One adult female (H110) was sampled twice: once upon capture and again after being in captivity for 12 days. This female was visibly pregnant during the first sample, but had lost the fetus when sampled later.

Blood samples were collected in tubes containing tripotassium ethylene diamine tetraacetic acid for cellular counts, and into plain serum tubes for biochemical analyses. Blood samples were stored at 4 C. All analyses were conducted within 24 hr of collection. Plasma was collected from whole blood centrifuged for 10 min at 3,000 *g*. Blood was analyzed at the Valme University Hospital (Seville, Spain) using a Coulter S Plus II (Izasa, Barcelona, Spain) to determine 15 hematological characteristics. A Hitachi 717 autoanalyzer (Boehringer Mannheim, Barcelona, Spain) and a Beckman Electrolyte Model 4 (Beckman, Madrid, Spain) were used to measure concentration of 23 serum characteristics by the methods of García-Rodríguez et al. (1987).

The results are summarized in Tables 1 and 2. For female H110, values for hemoglobin, mean corpuscular hemoglobin, mean corpuscular hemoglobin concentration, erythrocyte distribution, platelet volume, and granulocyte percentage were lower during pregnancy than after, whereas values for erythrocytes, packed cell volume, mean corpuscular volume and monocytes percentage were lower after the termination of pregnancy (Table 1). Val-

TABLE 1. Hematological values for five Egyptian mongooses, and an adult female (H110) sampled two times, Doñana National Park, Spain, 1985 to 1989.

	Mean ($n = 5$)	SD	Range	H110 A*	H110 B*
Hematological parameters					
Leukocytes ($10^3/\mu l$)	13.9	4.0	10.0 to 20.5	15.6	6.7
Erythrocytes ($10^6/\mu l$)	8.6	0.7	7.6 to 9.7	9.1	8.1
Hemoglobin (g/dl)	14.9	1.0	14.1 to 16.1	13.4	13.8
Packed cell volume (%)	41.7	4.3	37.0 to 47.3	47.1	39.1
Mean corpuscular volume (fl)	48.3	0.6	47.7 to 49.0	51.8	48.0
Mean corpuscular hemoglobin (pg)	17.4	0.9	16.6 to 18.8	14.7	17.0
Mean corpuscular hemoglobin concentration (g/dl)	35.8	1.8	34.0 to 38.5	28.5	35.3
Erythrocyte distribution (%)	28.6	10.0	17.4 to 39.9	15.7	19.9
Platelet count ($10^{12}/l$)	533.8	123.9	384 to 649	567	375
Packed platelet volume (fl)	11.0	1.6	9.8 to 13.8	6.9	10.5
Leukocyte Differential Count (%)					
Lymphocytes	14.0	3.8	10 to 18	5	9
Monocytes	5.0			10	4
Granulocytes	81.2	1.2	4 to 7	65	87
Eosinophils	0	4.4	78 to 87	0	0
Basophils	0			0.3	0

* A, Sample at time of capture when female was pregnant; B, sample 12 days after capture when the fetus was lost.

TABLE 2. Mean serum biochemical values for five Egyptian mongooses and an adult female (H110) sampled two times, Doñana National Park, Spain, 1985 to 1989.

Biochemical parameters	Number of mongooses	Mean	SD	Range	H110 A*	H110 B*
Glucose (mg/dl)	5	174.6	51.7	119–259	213	157
Urea (mg/dl)	5	57.4	17.1	35–71	71	59
Creatinine (mg/dl)	5	0.8	0.2	0.6–1.0	0.9	0.9
Uric acid (mg/dl)	5	1.0	0.6	0.4–2.0	0.6	1.1
Calcium (mg/l)	4	10.5	0.5	10–11	9.8	10.9
Phosphorus (mg/dl)	5	5.7	0.6	4.8–6.5	4.4	5.6
Total proteins (g/dl)	4	7.9	0.5	7.2–8.4	7.1	8.3
Total bilirubin (mg/dl)	4	0.2	0.1	0.1–0.3	0.2	0.2
Glutamic-oxalacetic transaminase (μ/l)	5	195.8	64.7	153–301	90	110
Glutamic-pyruvic transaminase (μ/l)	5	162.8	61.5	104–246	97	155
Alkaline phosphatase ($i\mu/l$)	4	340.5	92.7	241–449	136	226
Colinesterase (μ/l)	5	1,052.8	349.4	665–1,259	1,001	1,769
Gamma glutamil transpeptidase (μ/l)	4	2.8	1.0	2–4	1	1
Creatine phosphokinase (μ/l)	4	478.3	269.0	166–815	122	279
Lactatedehydrogenase (μ/l)	4	2,243	518.9	1,486–2,586	1,056	1,411
Amylase (μ/l)	4	2,461	1,638.9	117–3,607	2,941	4,858
Cholesterol (mg/dl)	4	260.5	100.7	180–405	286	278
Triglycerides (mg/dl)	4	18.8	16.3	6–42	2	13
Magnesium (mg/dl)	3	2.4	0.3	2.2–2.4	1.8	2.3
Sodium (meq/l)	4	150	13.1	131–161	149	
Potassium (meq/l)	4	4.4	0.4	3.9–4.7	5.3	
Chloride (meq/l)	1	129			112	
Indirect bilirubin (mg/dl)	3	1.1	1.1	0.3–2.4	0.2	0.3

* A, Sample at time of capture when female was pregnant; B, sample 12 days after capture, when the fetus was lost.

ues of many serum characteristics during female H110's pregnancy also differed from the other mongooses (Table 2).

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